RESEARCH HIGHLIGHTS

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SUSTAINABLE COMMUNITY DESIGN DEMONSTRATION IN OKOTOKS, ALBERTA: TESTING CONSUMER RECEPTIVITY

Introduction

This *Research Highlight* describes a sustainable community design demonstration in Okotoks, Alberta and summarizes the findings of a study testing consumer receptivity to the design features. CMHC co-sponsored the research, design and consumer receptivity testing along with Prominance Realty Ltd., Trans-Alta Utilities, The Faculty of Environmental Design at the University of Calgary and The Town of Okotoks.[1]

Background

Okotoks is one of several fast-growing rural towns in the Calgary metropolitan area.[2] The town, with a population of about 12,000, is within 20 to 30 minutes commuting distance to Calgary's southernmost communities and employment districts. Between 1995 and 1997, the Town consulted extensively and intensively with the community to clarify priorities about lifestyle and quality of life protection. In response, they developed the award-winning Sustainable Okotoks Municipal Development Plan (MDP) for growth management and sustainable development. The MDP sets out a long-range commitment to live within the carrying capacity of the surrounding environment and an intent to preserve the "small town atmosphere" using innovative urban design and land use techniques.

This includes limiting water use to within the watershed capacity of the Sheep River, capping population growth, limiting expansion of the town boundaries and pursuing eco-efficiency through urban design, renewable resources and recycling. Overall, receptivity to these objectives and their practical implementation has been positive.

With widespread citizen input and support, the Sustainable Okotoks MDP focuses on:

- Land use/urban design;
- Mixed residential housing;
- Transportation systems;
- Open space/urban forest;
- Regional partnerships and planning;
- Planning for a socially responsible community; and
- Long-term affordability.

In the community survey of November 2000, 84 per cent of respondents continued to agree with the MDP policy of capping population and fixing boundaries to accommodate 25-30,000 people. In the initial Community Survey of 1997 (1,000 returns), 83 per cent of respondents believed that any development not complying with sustainable development principles should be refused. Some 70 per cent of Okotoks residents supported diversified, mixed-use housing such as detached homes, townhouses, duplexes, apartments, "granny" suites, seniors' housing and narrow lots that would result in affordable homes and increased choices for residents across the demographic and social spectrum.

[1] *The project coordinator and lead consultant was William T. Perks. More information is available in the Okotoks Sustainable Community Design Report, which includes more details and many illustrations of the community design. Contact* ***municipalmanager@town.okotoks.ab.ca*** *for more details.*

[2] *More information on Okotoks is available on the Web site* ***http://www.town.okotoks.ab.ca***

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Findings -Testing Consumer Receptivity to the Sustainable Community Design

The *Okotoks Sustainable Community Design* is a project that demonstrates how the innovative goals and objectives of the Okotoks MDP could be achieved through a neighbourhood design for the 57.2-hectare (143-acre) "Tucker Lands" site in southwest Okotoks. Site design objectives include:

- A wide range of housing choices and home lot sizes –for both owners and renters;
- An extensive open space system, ecological landscapes, and special places with diverse recreation and amenity value to the neighbourhood;
- Street layouts with connectivity between neighbourhood destinations and convenient walking and cycling access;
- A neighbourhood core for clustering community facilities and some retail, business and home-based enterprises; and
- Water conservation and innovative storm water management.

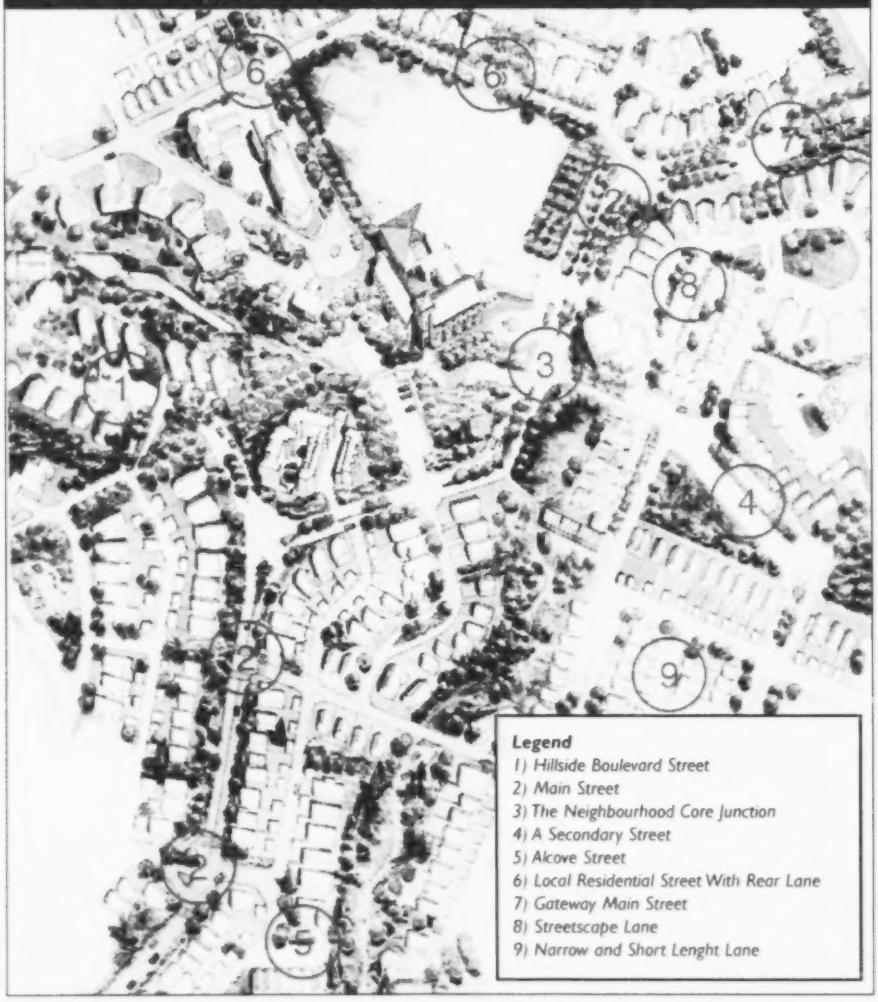
Consumer receptivity to the alternative features in the design for the Tucker Lands was tested using diagrams and animated sequences. The consumer receptivity survey seeks to answer whether or not consumers would live in such a neighbourhood. Would they "buy in" to the features, and what trade-offs would they make in their customary residential expectations? Survey participants were randomly selected from households in Okotoks listed in the telephone directory. Of the 450 selected, 78 completed returns and responded to 48 preference- and opinion-type questions. The following sections describe the features of the community design and the responses received in the survey.

A Neighbourhood Centre

The plan places formal work, recreation, education and shopping opportunities close to homes. The school is the centerpiece of the neighbourhood plan (Figure 1). It is the primary place for social-community activities and organized recreation including a community day care plus an arboretum and wetlands area that could serve as "laboratories" for the student curriculum. The school/recreational/commercial/hub provides an architectural landmark, highly visible from all points in the neighbourhood, and a meeting place. The school could be reached by a 10-minute walk from 85 per cent of the homes. Further elements in the Neighbourhood Centre would be a corner store, coffee shop, community allotment gardens, a park and commuter bus station. A small-scale apartment building with affordably priced rental units, multi-family condos and townhouses would be close by.

- 82 per cent of respondents said they would choose to have a school within walking distance and 15 per cent had no preference.
- 74 per cent of respondents wished to have a "centre" developed in the neighbourhood, while 14 per cent would have one with limited uses only.

Figure 1:The neighbourhood center


Legend
1) Hillside Boulevard Street
2) Main Street
3) The Neighbourhood Core Junction
4) A Secondary Street
5) Alcove Street
6) Local Residential Street With Rear Lane
7) Gateway Main Street
8) Streetscape Lane
9) Narrow and Short Lenght Lane

Amenities, Open Space System, Pathways

With few exceptions, the homes throughout the neighbourhood are within a street block stroll of the continuous pathway network (Figure 2). Environmental buffers such as linked open spaces between residential, commercial and recreational land uses would allow proximity without intrusiveness. Many special places are also incorporated into the design as shown in Figure 3.

- 99 per cent favoured, either strongly or somewhat, the extended and linked open spaces into which the pathway system is fitted.

Respondents were asked to rank the factors, other than location, that influence their home buying decision.

- Lifestyle was ranked the most important factor (45 per cent of respondents), followed by house price (36 per cent) and then house size. Lot size was not an important factor for most of them.

The enhanced lifestyle features of the Sustainable Community Design, like being close to an open space network, evidently provide a marketing advantage for the site developer and homebuilders.

Figure 2: Connectivity, pathways and main employment/shopping places

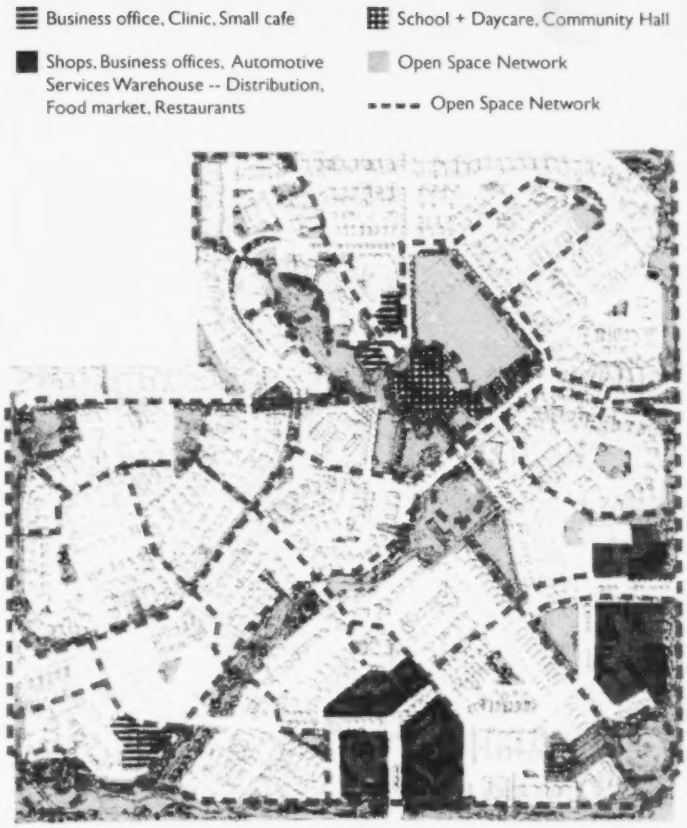
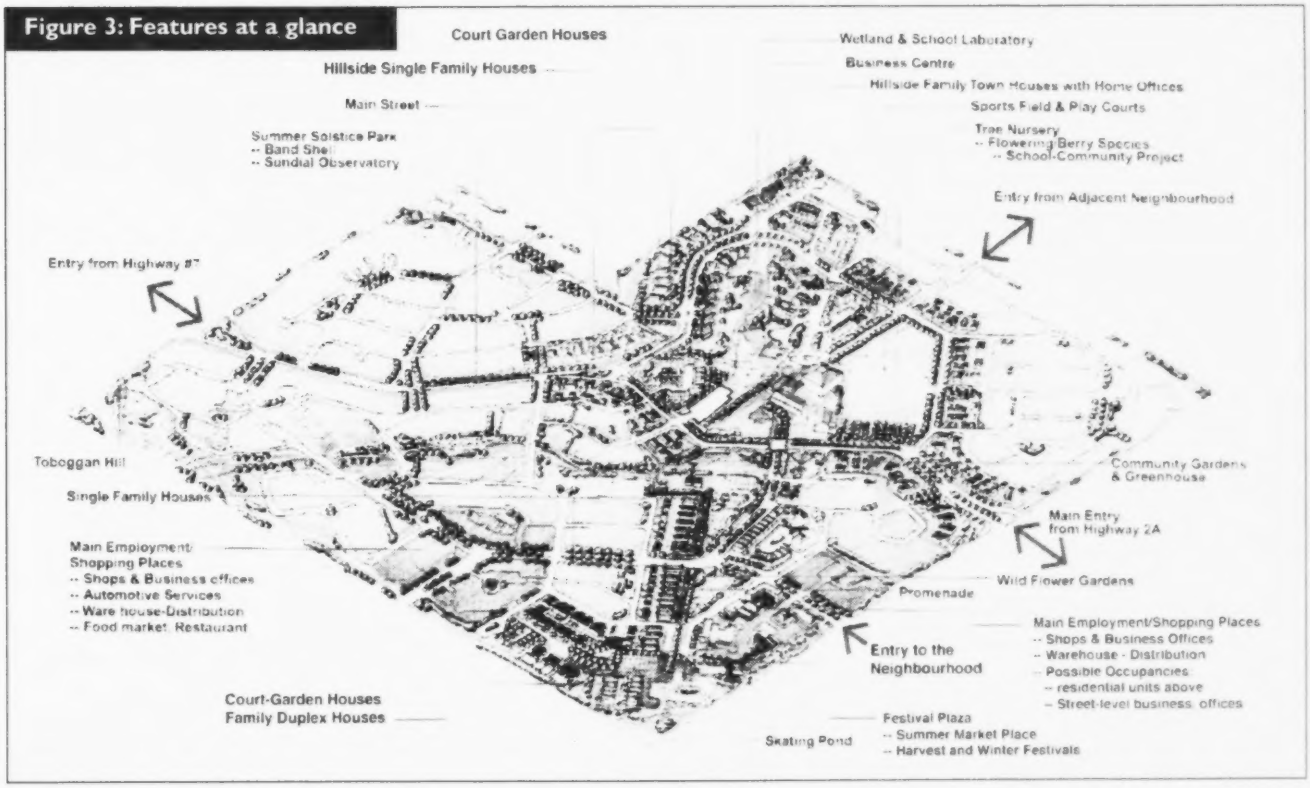

Business office, Clinic, Small cafe
School + Daycare, Community Hall
Shops, Business offices, Automotive Services Warehouse -- Distribution, Food market, Restaurants
Open Space Network
Open Space Network

Figure 3: Features at a glance



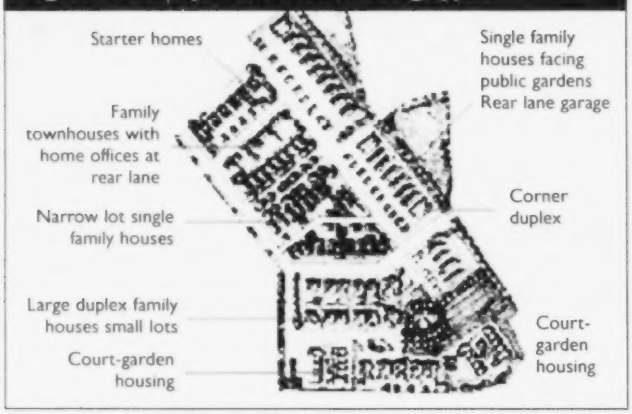
Housing Choices

The MDP specifies that 30 per cent of Tucker Lands housing should be of a "non-traditional type" to reflect all housing needs within the community–rental, ownership and more affordable housing. In the design, 400 single detached homes and 170 townhouses, duplexes and apartments are provided. The design combines different housing types and lot sizes within areas of two-three blocks or even within a single block, including single and multi-family homes and those with certain businesses/retail or second units.

Respondents were shown four neighbourhood areas reflecting different housing types, for example, the housing mix shown in Figure 4.

- While 51 per cent of respondents said they would chose to live in areas that were predominantly single-detached housing, 49 per cent preferred areas that have a diversity of housing types, including townhouses, court garden units, duplexes and small apartment buildings.
- 76 per cent were in favour of allowing second units in their neighbourhood, but with 39 per cent requiring certain conditions. Twenty-seven (27) percent are interested in having a rental suite in their home.
- 59 per cent said they would like to see work-at-home housing units scattered throughout the neighbourhood, while 8 per cent said they would like to see them located at the neighbourhood center and 10 per cent would like them excluded altogether.

Figure 4: Example of mixed housing types


Starter homes
Single family houses facing public gardens
Rear lane garage
Family townhouses with home offices at rear lane
Corner duplex
Narrow lot single family houses
Large duplex family houses small lots
Court-garden housing
Court-garden housing

Respondents were asked to consider a typical home and a sustainable home of equal price and number of rooms, but less floor area. The sustainable home has an energy-efficient building envelope, water-conserving fixtures, built-in recycling and composting in the kitchen and porous paving materials for driveways.

- 8 per cent preferred a typical home, 34 per cent preferred a sustainable home, 52 per cent preferred a combination of the two and six per cent were undecided.
- When asked if they favoured district heating of homes supplied by a co-generation plant in the school and managed by a residents' co-operative, 53 per cent said yes.

Streets and Street Landscapes

The street environments incorporate short blocks, narrow roadways with slow-moving traffic and safer and more attractive and convenient places for pedestrians and cyclists. On-street parking would be provided on one or both sides of the streets. In addition to trees lining both sides, a separate sidewalk and landscaped boulevard would be located on one or both sides. Roadway design strikes a balance between pedestrians, cars and nature.

Rear lanes are provided to help create a more attractive street environment without front-driveway garages dominating the street architecture. The street network indicates a variety of types, sizes and landscape treatments, as shown in figure 1. The tree-lined Main Street has a 21 m right-of-way. Residential streets have a 10-15 m right-of-way, depending on the block length, number of units and whether traffic is one-way. Lanes would be 7-10 m wide depending on the land uses (for example rear-lot home business, secondary suite).

- 64 per cent favoured street parking on both sides while 26 per cent said they would accept it on only one side.
- 45 per cent preferred front driveways while 36 per cent wanted access via a rear lane.
- 57 per cent would purchase a smaller lot at a slightly reduced price (about $2,000 less) if it still provided a similar amount of rear private yard.

Figure 5: Streetscape preferences

Street A

Street B

Respondents were shown two virtual walk-through animated scenarios with contrasting street design as shown in Figure 5. Scenario A included houses with front garages, wide streets with no on-street parking and single trees in grassed boulevards. Scenario B showed a narrower street, on street parking in bays, houses with no front garages set closer to the street and planted boulevards separating the sidewalks from the street.

- 54 per cent preferred Scenario B while 36 per cent preferred Scenario A, likely because of a preference for a front-driveway garage.

Ecological Infrastructure: Open Space, Stormwater Management and Habitat Designs

The conventional way of managing stormwater is to remove it quickly via underground pipes. In a sustainable neighbourhood, stormwater management functions are designed into urban habitat units and open space networks to enable water to infiltrate slowly into the ground and to be used for ponds, wetlands or irrigation. Figure 6 shows streetscapes that direct stormwater to planted swales along the road sides that allow infiltration and groundwater recharge, slow the flow of stormwater, help remove pollutants and retain water in the landscape longer for use by flora and fauna.

Figure 6: Linear infiltration along street

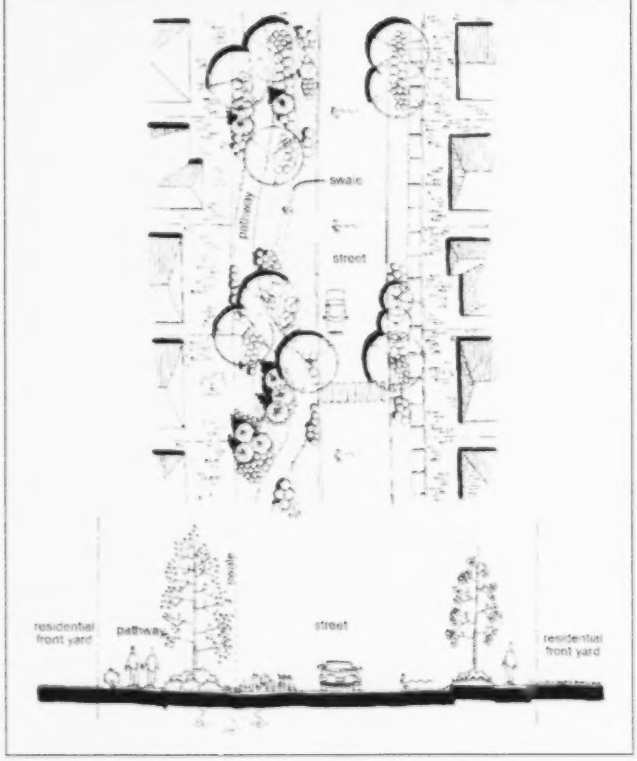


Figure 7: Ecological landscapes: low-maintenance, multi-layered habitat

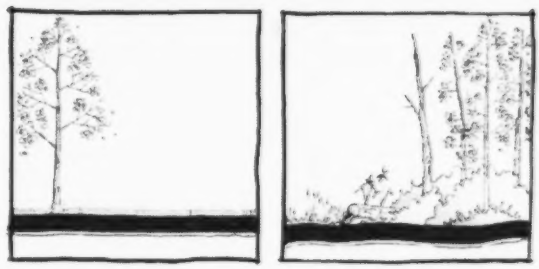
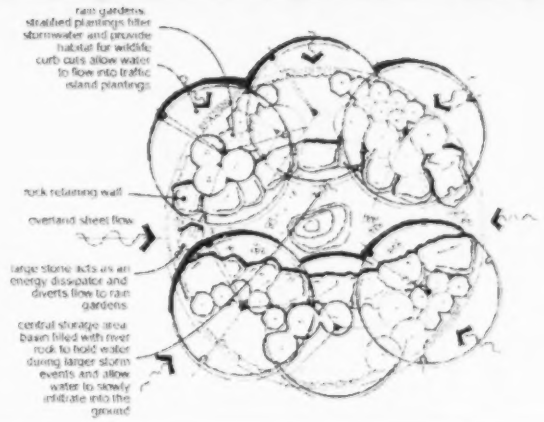


Figure 8: Infiltration islands


rain gardens straddled plantings filter stormwater and provide habitat for wildlife curb cuts allow water to flow into traffic island plantings
rock retaining wall
overland sheet flow
large stone acts as an energy dissipator and diverts flow to rain gardens
central storage area, basin filled with river rock to hold water during larger storm events and allow water to slowly infiltrate into the ground

Principles of landscape ecology are used to create seasonal habitats as an integrated component of open space networks and streetscapes. These open spaces feature low-maintenance prairie grasses and wildflowers and multi-layered compositions of fruiting trees, shrubs and evergreens (Figure 7). They provide habitat, visual diversity and stormwater infiltration.

- Incorporating environmental stormwater management methods other than underground pipes was favoured by 84 per cent.
- 63 per cent said they favoured having community gardens in the neighbourhood, while 12 per cent oppose it.
- 81 per cent said they would pay $2-5,000 more for a home in a neighbourhood with linked opens spaces and habitat features.
- 80 per cent chose streetscapes with a variety of habitat units and visual diversity while 15 per cent preferred the typical streetscape with single species trees evenly spaced in mowed grass boulevards.

Intensive Employment District

The *Okotoks Sustainable Community Design* Report examines the Town's policy guideline to have 11 hectares of "intensive employment centers" on the Tucker Lands site. The authors of the report draw attention to the January 2002 publication of the Urban Land Institute, *Ten Principles for Reinventing America's Suburban Business Districts*, in which recent studies of successful development innovations prove the importance of the "place-making dividend".

The sustainable community goal to live-work-shop in an inviting and safe environment can overcome the conventional high auto dependence of traditional suburban developments. In a "place-making dividend" design, the employment area density is higher than in typical suburban business districts. Also, buildings are oriented to the street, surface parking is minimized and pedestrian linkages are maximized. The density of office workers is higher than in retail-only areas. This translates into less land requirement than the 11 hectares originally targeted to achieve the Town's employment and live-work community goals. An effective approach to attracting office tenants is to provide places that are attractive to their employees, like pedestrian friendly-places that provide a full spectrum of services, including retail, and to build on the strengths of the location, such as the Tucker Lands' rural scenic setting and the Town's historic, small-community atmosphere.

Conclusion

Overall, 87 per cent of respondents said they would be interested in purchasing a home in the Sustainable Community designed for the Tucker Lands demonstration project. The Consumer Receptivity Survey shows a favourable response on key innovative features of the design and concepts for housing diversity and environmental stewardship. The design reflects trade-offs that consumers would appear to be willing to make—more compact residential development for greater amounts of linked open space and special places of civic importance to the neighbourhood, along with ecological landscapes and water conservation.

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Housing Research at CMHC

Under Part IX of the *National Housing Act*, the Government of Canada provides funds to CMHC to conduct research into the social, economic and technical aspects of housing and related fields, and to undertake the publishing and distribution of the results of this research.

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